

**Notice of Allowability**

Application No.

10/031,120

Examiner

Jason R. Kurr

Applicant(s)

NIELSEN ET AL.

Art Unit

2615

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendment dated August 16, 2007.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application   |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>9/22/07</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|  | 9. <input type="checkbox"/> Other _____   |

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Richard H. Tushin on September 28, 2007.

The application has been amended as follows:

#### **Claim 1:**

-- 1. (Currently Amended) A method for canceling feedback in an acoustic system comprising a microphone, a speaker, a signal path between the microphone and the speaker, means for detecting presence of feedback between the speaker and the microphone, and first adaptive feedback cancellation filter means for compensating at least partly a possible feedback signal, the method comprising:

using a LMS algorithm for generating filter coefficients for the first adaptive feedback cancellation filter means and for generating identical filter coefficients for a second adaptive feedback cancellation filter means;

using at least one highpass filter to prevent low-frequency signals from the signal path from entering the LMS algorithm; and

using the second adaptive feedback cancellation filter means and a noise generator for providing low-frequency input for the LMS algorithm.--

**Claim 8:**

-- 8. (Currently Amended) A hearing aid comprising:

- a microphone;
- a speaker;
- a signal path between the microphone and the speaker, and which includes an amplifier;
- means for detecting feedback between the speaker and the microphone;
- first adaptive feedback cancellation filter means for at least partly compensating a possible feedback signal;
- memory means including a LMS algorithm for generating filter coefficients for the first adaptive feedback cancellation filter means and for generating identical filter coefficients for a second adaptive feedback cancellation filter means;
- at least one highpass filter for preventing low-frequency signals from the signal path from entering the LMS algorithm; whereby
- the second adaptive feedback cancellation filter means and a noise generator provides low-frequency input for the LMS algorithm.--

***Allowable Subject Matter***

Claims 1-10 are allowed. For the purpose of allowance, the original numbering of the claims has been changed.

The following is an examiner's statement of reasons for allowance:

The Examiner has allowed the present claims for the reasons set forth in the Applicant's "REMARKS" dated August 16, 2007. The present claims identify the Applicant's invention over the prior art, wherein the low frequency part of the signal path is filtered out from the input signals to the LMS-algorithm block and that a low frequency input for the LMS algorithm is provided by a second adaptive feedback cancellation filter and a noise generator. The Examiner has not found prior art that teaches or suggests the modification of the cited prior art in order to provide a low frequency input to an LMS algorithm as defined in the independent claims 1 and 8. Other prior art has been cited herein regarding adaptive feedback cancellation, however the other prior art of record also fails to teach or provide suggestion to arrive the combination of the elements and steps presented in the independent claims, again when said elements or steps are collectively considered in regards to each claim. For at least the reasons listed above, the dependent claims are also allowed in view of their respective dependencies upon the independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Terai et al (US 6,418,228 B1) discloses a noise control system.

Raviv (US 5,444,786) discloses a snoring suppression system.

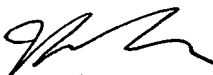
Lewis et al (US 6,389,440 B1) discloses an acoustic feedback correction system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JK  
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